

REMARKS

Applicant respectfully requests reconsideration of the present application in view of the foregoing amendments and in view of the reasons that follow. After amending the claims as set forth above, claims 5-17 are now pending in this application.

Applicant wishes to thank the Examiner for the careful consideration given to the claims.

Specification

The specification is objected to because the abstract exceeds the limit of 150 words. The abstract has been amended to be within 150 words. For at least this reason, favorable reconsideration of the objection is respectfully requested.

Claim rejections and objections

Claim 1 and 4 are objected to for minor informalities. Claims 1-4 are rejected under 35 U.S.C. 112, second paragraph as being indefinite. Claims 1 and 4 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 4,175,475 ("Eckhardt"). Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 4,493,614 ("Chu"). Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Eckhardt in view of U.S. Patent 6,079,715 ("Johnen"). Claims 1-4 have been canceled, which renders the rejections and objections of these claim moot. For at least this reason, favorable reconsideration of the rejections and objections is respectfully requested.

Allowability of claims 5-16

Claim 5 recites a sealing structure including, among other things, a sealing washer, "wherein the sealing washer has an elasticity such that any space between the sealing hole and the threads of the screw pillar is closed at the exhausting of the content." Claim 10 recites similar or analogous features. Eckhardt, Chu, Johnen, or any combination thereof fails to teach or suggest this combination of features.

For example, Eckhardt merely discloses a sleeve element 40 formed of glass filled nylon that can be squeezed or deflected by high fluid pressures (column 2, lines 40-45 of Eckhardt), a worm gear 22, a backup washer 54, a snap ring 56, and an O-ring 64 for sealing (Fig. 2 of Eckhardt). Sealing takes place either by the O-ring 64 (column 3, lines 13-16 of Eckhardt) or the flange 46 of the sleeve element 40 (column 3, lines 37-40 of Eckhardt). Eckhardt does not teach or suggest that the sleeve has an elasticity such that any space

between the sealing hole and the threads of the screw pillar is closed at the exhausting of the content.

Chu teaches a threaded shaft 34, a plastic sealing nut 50, and a piston 28. (Fig. 1 and column 4, line 60 to column 5, line 5 of Chu.) The plastic sealing nut 50 has a threaded interior corresponding virtually identically with the threaded surface of the shaft 34. (Column 5, lines 1-7 of Chu.) However, there is no teaching or suggestion that the nut 50 of Chu has elasticity such that any space between the sealing hole and the threads of the screw pillar is closed at the exhausting of the content. Furthermore, there is no teaching or suggestion that the nut 50 of Chu is configured to be formed between the piston 28 and the connecting sleeve 49.

Johnen merely teaches a rotary shaft seal with an NBR seat. (Column 2, lines 56-65 of Johnen.) However, Johnen does not teach or suggest a sealing washer having a sealing hole through which a screw pillar is inserted and is configured to be formed between a piston and a screw cap of the piston assembly, a sealing washer configured to seal a chink that is generated between threads of the screw pillar at an exhausting of the content when the piston assembly is removed by the screw pillar, and a sealing washer having an elasticity such that any space between the sealing hole and the threads of the screw pillar is closed at the exhausting of the content.

It is noted that the PTO has asserted, in regard to the rejection to now canceled claim 3, that Eckhardt does not teach the material for the sleeve element 40, that Johnen discloses a sealing assembly having a seal formed of NBR, and it would have been obvious to modify the seal of Eckhardt by using the NBR of Johnen “for the purpose of preventing fluid leakage between the pressure spaces divided by the piston via the screw threads.” (Page 4 of the Office Action.) Any rejection based on this combination is improper for the following reasons. First, Eckhardt teaches that the sleeve element 40 is made from a glass filled nylon or other suitable material which has good wear characteristics and can be squeezed or deflected by the high fluid pressures within the power cylinder to provide for improved fluid sealing. (Column 2, lines 40-45 of Eckhardt.) Because Eckhardt teaches a suitable material for the sleeve element 40, there is no reason to use the NBR of Johnen. Furthermore, because the sleeve element 40 of Eckhardt requires good wear characteristics, it is likely NBR would not provide such characteristics. This assumption is supported by the fact that Eckhardt uses a glass filled nylon and an O-ring (which is more compressible but lacks good wear characteristics) is necessary rather than making the entire sleeve element 40 from an O-ring.

type material. Because it is likely that the NBR of Johnen would not fulfill the requirements of providing a material with good wear characteristics and Eckhardt already teaches the use of glass filled nylon, one with ordinary skill in the art would not have a reason to substitute the NBR of Johnen for the sleeve element of Eckhardt. Thus, any rejection based on Eckhardt and Johnen would be improper.

Claims 6-9 and 11-17 depend from and contain all the features of claim 5 or claim 10, and are allowable for the same reasons as claim 5 or claim 10, without regard to the further patentable features contained therein.

For at least these reasons, allowance of claims 5-17 is respectfully submitted.

Conclusion

Applicant believes that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check or credit card payment form being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

Date 10/17/2007

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